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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/804,921	03/13/2001	John Joseph Konrad	END9-2000-0077US1	2770

7590 09/13/2002
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EXAMINER

CUNEO, KAMAND

ART UNIT	PAPER NUMBER
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2827

DATE MAILED: 09/13/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/804,921

Applicant(s)

KONRAD ET AL.

Examiner

Cuneo

Art Unit

2827

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 April 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-31 is/are pending in the application.
- 4a) Of the above claim(s) 11-31 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 13 March 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Drawings

1. The drawings are objected to for the following reasons.

The figures are improperly cross hatched. All of the parts shown in section, and only those parts, must be cross hatched. The cross hatching patterns should be selected from those shown on page 600-81 of the MPEP based on the material of the part. See also 37 CFR 1.84(h)(3) and MPEP 608.02.

Drawing corrections in compliance with MPEP 608.02(v) are required in response to this office action.

Treatment of Claims Based on Prior Art

2. 35 USC 102 includes the following sections which state:

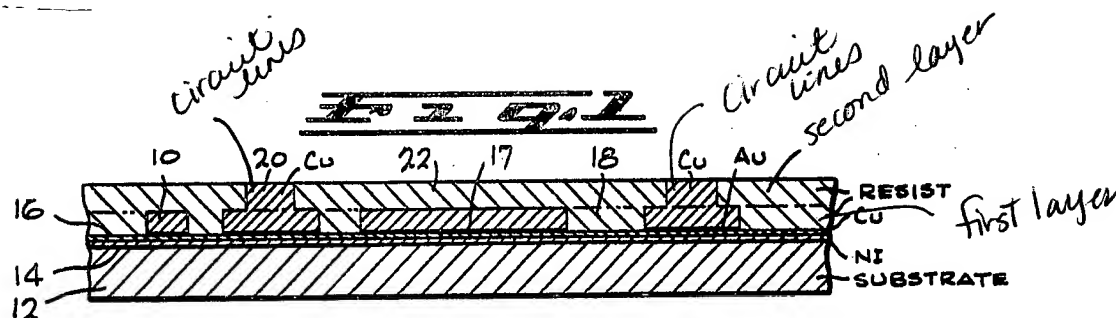
A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(c) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

3. Claims 1- 4 are rejected under 35 USC 102(b) as being anticipated by Lebow et al. (US 4306925, hereafter Lebow).

See the markings on figure 1 for an explanation of the layers.



Claim 2: The third layer is shown in figure 3 and is layer (48).

Claim 3: The metal is present as seen from the figure. The metal being plated, is a method limitation in a product claim which does not alter the product physically in any way. As the prior art provides the identical product to the claim, the claim is deemed as anticipated. See MPEP 2113.

Claim 4: The metal is identified as copper in figure 1.

4. Claims 1, 5-6 are rejected under 35 USC 102(b) as being anticipated by Leeuw et al. (US 5620800, hereafter Leeuw).

Figure 2 discloses first dielectric layer 3, second dielectric layer (5) which is a polymer resin and conductors (7) made from filled trenches and flush with the top surface of dielectric layer 5.

5. 35 USC 103(a) states:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art

to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Obviousness under 35 USC 103(a) is determined against a background established by the factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), which are summarized in items 1-4 below.

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

6. This application currently names joint inventors. In considering patentability of the claims under 35 USC 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 USC 103(c) and potential 35 USC 102(f) or (g) prior art under 35 U.S.C. 103(a).

7. Claims 7-10 are rejected under 35 USC 103(a) as being unpatentable over Lebow as applied to claim 1 above.

Claims 7-9: Lebow discloses the claimed invention except for the particular dimensions of the circuit lines. Nevertheless, selection of the size of circuit lines is a design choice based on the required current, the integrity of the signal, the distance the signal must be transferred and various

such requirements. Furthermore, formation of signal lines within the ranges of tenths of mils wide and tenths of mils apart and within the ranges of microns thick are old and well known and do not pose any design or manufacturing problems that are not resolved by current-day technology.

Therefore, examiner concludes that selection of the sizes and spacings of the lines as recited in claims 7-9 is a matter of design choice based on applicant's particular design criteria and constitutes discovering an optimum or workable range. Therefore, it would have been obvious to one of ordinary skill in the art, at the time the invention was made, to make the circuit lines of the dimensions and spacings specified in claims 7-9 for optimum performance of his device, because selection of the size and spacing of conductors is well known in the art. Further, it has been held that, where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable range is within the level of ordinary skill. *In re Aller*, 105 USPQ 233,235.

Claim 10: Claim 10 depends from claim 1 and further recites two structures of claim 1 stacked together. It would have been obvious to one of ordinary skill in the art, at the time the invention was made, to stack two of the structures of Lebow together to increase the capacity of the circuit board, because it is a matter of common sense to duplicate parts for added capacity and increased functionality.

8. Claims 1, 10 are rejected under 35 USC 103(a) as being unpatentable over Modjeska (US 3324014) and Thorn (US 3149265), Leibowitz (US 4875282), Nakatani et al. (US 5004640, hereafter Nakatani).

Figure 7 discloses a polymer layer with the claimed circuit patterns. Modjeska discloses all of the elements of claim 1 except the first dielectric layer. Single layer dielectric/conductor structures

are commonly stacked to form multilayer boards. This practice is old and well known and affords added capacity of the board within increasing the surface area. Thorn, Leibowitz and Nakatani all disclose this practice.

Therefore, it would have been obvious to one of ordinary skill in the art, at the time the invention was made, to stack multiple ones of the structure of Modjeska to form a multilayer board with added capacity as taught by Thorn, Leibowitz and Nakatani.

Response to Arguments

9. Applicant's arguments have been reviewed, but are moot in view of the new grounds of rejection.

Closing

10. Any inquiries related to the examination of this application should be directed to Ex. K. Cuneo at (703) 308-1233 or her supervisor SPE David L. Talbott at (703) 305-9883. Inquiries of a general nature should be directed to the receptionist of Group 2800 at (703) 308-0956. The fax numbers for Group 2800 are (703) 308-7722 and 7724.



K. Cuneo
Primary Examiner
September 8, 2002